

WHAT IS CLAIMED IS:

1. A shaft sleeve structure for use in a module capable of being slid along a guiding shaft, comprising:

a passage punched through said module for receiving said guiding shaft and providing a first opening segment, a second opening segment and a central segment, wherein said first opening segment has an internal diameter larger than that of said second opening segment, and said central segment has an internal diameter gradually tapered from said first opening segment to said second opening segment;

a first bearing having an external diameter mounted in said first opening segment and having an internal diameter for slidably receiving therein said guiding shaft; and

a second bearing having an external diameter mounted in said second opening segment and having an internal diameter for slidably receiving therein said guiding shaft, wherein said internal diameter is the same as that of said first bearing.

2. The shaft sleeve structure according to claim 1, wherein said internal diameter of said central segment in said passage decreases linearly from said first opening segment to said second opening segment.
3. The shaft sleeve structure according to claim 1, wherein said internal diameter of said central segment in said passage decreases non-linearly from said first opening segment to said second opening segment.
4. The shaft sleeve structure according to claim 1, wherein each of said first and second bearing is made of a material selected from one of plastic and metal.
5. The shaft sleeve structure according to claim 1, wherein said module is an optic module in an image scanner.

6. The shaft sleeve structure according to claim 1, wherein module is an optic module in a copy machine.
7. The shaft sleeve structure according to claim 1, wherein said module is a printing head module in a printer.
8. A method of manufacturing a shaft sleeve structure for use in a module capable of being slid along a guiding shaft, comprising steps of:
 - (a) providing a slider comprising a first segment, a second segment and a central segment, wherein said first segment has an outer diameter larger than that of said second segment, and said central segment has an outer diameter gradually tapered from said first segment to said second segment;
 - (b) encapsulating said first segment, said second segment and said central segment of said slider within said module when forming said module;
 - (c) providing a driving force for drawing out said slider in the direction from said second segment toward said first segment and defining a passage on said module; and
 - (d) mounting a first bearing and a second bearing at two opening ends of said passage respectively, wherein said first bearing having an internal diameter the same as that of said second bearing.
9. The method according to claim 8, wherein said outer diameter of said central segment of said slider decreases linearly from said first segment to said second segment.
10. The method according to claim 8, wherein said outer diameter of said central segment of said slider decreases non-linearly from said first segment to said second segment.
11. The method according to claim 8, wherein each of said first and second bearing is made of a material selected from one of plastic and metal.

12. The method structure according to claim 8, wherein said module is an optic module in an image scanner.
13. The method according to claim 8, wherein module is an optic module in a copy machine.
14. The method according to claim 8, wherein said module is a printing head module in a printer.
15. The method according to claim 8, wherein said driving force is provided by an oil pressure pump.
16. The method according to claim 8, wherein said module is formed by injection molding.
17. The method according to claim 8, wherein said module is formed by die-casting.